CHAAP Data Verification

Laboratory and SDG#: Eurofins 280-162442 **AECOM Chemist: D. Casagrande**
Date Verified: 7/20/2022 **AECOM ITR: S. Louie**
Guidance: DoD QSM Version 5.1 (January 2017)
Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

Sample Identification #	Date Collected	Date Received	Matrix	Analysis
NW022-22A	5/16/2022	5/17/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
PZ004-22A	5/16/2022	5/17/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
G0099-22A	5/16/2022	5/17/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
PZ016-22A	5/15/2022	5/17/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
PZ015-22A	5/15/2022	5/17/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
G0089-22A	5/16/2022	5/17/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
G0097-22A	5/15/2022	5/17/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
G0098-22A	5/15/2022	5/17/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
G0112-22A	5/15/2022	5/17/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
NW220-22A	5/16/2022	5/17/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
NW020-22A	5/16/2022	5/17/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)

CHAAP Data Verification

Laboratory and SDG#: Eurofins 280-162442 **AECOM Chemist: D. Casagrande**
Date Verified: 7/20/2022 **AECOM ITR: S. Louie**
Guidance: DoD QSM Version 5.1 (January 2017)
Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

Sample Identification #	Date Collected	Date Received	Matrix	Analysis
NW021-22A	5/16/2022	5/17/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
G0067-22A	5/14/2022	5/17/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
G0118-22A	5/14/2022	5/17/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
G0110-22A	5/14/2022	5/17/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
G0109-22A	5/14/2022	5/17/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
G0114-22A	5/14/2022	5/17/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
G0108-22A	5/14/2022	5/17/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
G0084-22A	5/15/2022	5/17/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
G0085-22A	5/15/2022	5/17/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)
G0113-22A	5/14/2022	5/17/2022	Water	Explosives (8330A), Nitrate, Nitrite (353.2), Ammonia (350.1), TKN (351.2), Methane (RSK-175), DOC (9060A), Sulfate (9056A), Alkalinity (2320B), Sulfide (9034)

CHAAP Data Verification

Laboratory and SDG#: Eurofins 280-162442 **AECOM Chemist: D. Casagrande**
Date Verified: 7/20/2022 **AECOM ITR: S. Louie**
Guidance: DoD QSM Version 5.1 (January 2017)
Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

1.0 Laboratory Case Narrative \ Cooler Receipt Form

Verification Criteria	Yes	No	N/A
Were any DoD QSM deviations noted in the laboratory case narrative?	X		
Were DoD QSM corrective actions followed if deviations were noted?	X		
Were any issues noted in the cooler receipt form?	X		

Validator comments in italics.

Method RSK-175:
The method requirement for no headspace was not met. The following volatile samples were analyzed with significant headspace in the sample container(s): G0098-22A (280-162442-8) and G0112-22A (280-162442-9). Significant headspace is defined as a bubble greater than 6 mm in diameter. *This issue is discussed further in Section 7.0.*

Method 8330A:
The continuing calibration verification (CCV) associated with batch 280-575777 for method 8330 recovered outside acceptance criteria for 1,3,5-Trinitrobenzene. Analyte was reported ND from the primary instrument. The following sample is impacted: G0113-22A (280-162442-21). *This issue is discussed further in Section 5.0.*

The laboratory control sample duplicate (LCSD) for preparation batch 280-575684 and analytical batch 280-575728 for method 8330 recovered outside control limits for the following analytes: m-Nitrotoluene (73-125%R) at 68%R. The LCSD recovered within control limit in the confirmation instrument. m-Nitrotoluene is ND in the primary and confirmation instrument. The associated sample is impacted: G0113-22A (280-162442-1). *This issue is further discussed in the ADR report.*

The %RPD between the primary and confirmation column exceeded 40% for 2-Amino-4,6-dinitrotoluene, HMX and RDX for the following samples: PZ016-22A (280-162442-4), G0097-22A (280-162442-7), G0112-22A (280-162442-9), NW220-22A (280-162442-10), NW020-22A (280-162442-11) and G0118-22A (280-162442-14) in preparation batch 280-575663 and analytical batch 280-576029 for method 8330. The results from both columns has been qualified and reported in accordance with the laboratory's QAS. *This issue is discussed further in Section 7.0.*

Surrogate recovery for the following sample in preparation batch 280-575663 and analytical batch 280-576041 for method 8330 was outside the upper control limits: G0098-22A (280-162442-8). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed. Surrogate recovered within control limit in the primary instrument. *Since the surrogate was recovered above the control limit and no analytes were detected in sample G0098-22A, no data are affected or qualified. This issue is further discussed in the ADR report.*

Surrogate recovery for the following sample in preparation batch 280-575663 and analytical batch 280-576029 for method 8330 was outside the upper control limits: G0118-22A (280-162442-14). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed. Surrogate recovered within control limit in the confirmation instrument. *This issue is further discussed in the ADR report.*

CHAAP Data Verification

Laboratory and SDG#: Eurofins 280-162442 **AECOM Chemist: D. Casagrande**
Date Verified: 7/20/2022 **AECOM ITR: S. Louie**
Guidance: DoD QSM Version 5.1 (January 2017)
Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

Method 2320B:
Total Alkalinity as CaCO3 was detected in method blank MB 280-576106/32 at a level that was above one half the LOQ but below the LOQ. Associated sample results are greater than 10x the method blank concentration. *No data are considered affected or qualified.*

Method 351.2:
Nitrogen, Total Kjeldahl failed the recovery criteria low for the MS of sample NW020-22AMS (280-162442-11) in batch 280-576828. Nitrogen, Total Kjeldahl failed the recovery criteria low for the MSD of sample NW020-22AMSD (280-162442-11) in batch 280-576828. *TKN was not detected in sample NW020-22A, therefore result qualified (UJ). This issue is further discussed in the ADR report.*

Method 353.2:
Nitrate Nitrite as N failed the recovery criteria low for the MS of sample G0089-22AMS (280-162442-6) in batch 280-576988. Nitrate Nitrite as N failed the recovery criteria low for the MSD of sample G0089-22AMSD (280-162442-6) in batch 280-576988. *Nitrate Nitrite as N was detected in G0089-22A, therefore result qualified (J). This issue is further discussed in the ADR report.*

Method 9056A:
Sulfate failed the recovery criteria high for the MS of sample G0118-22AMS (280-162442-14) in batch 280-576573. Sulfate failed the recovery criteria high for the MSD of sample G0118-22AMSD (280-162442-14) in batch 280-576573. *Sulfate was detected in sample G0118-22A, therefore result qualified (J). This issue is further discussed in the ADR report.*

Sulfate failed the recovery criteria high for the MS of sample G0097-22AMS (280-162442-7) in batch 280-576573. Sulfate failed the recovery criteria high for the MSD of sample G0097-22AMSD (280-162442-7) in batch 280-576573. *Sulfate was detected in sample G0097-22A, therefore result qualified (J). This issue is further discussed in the ADR report.*

No other issues were noted in the case narrative or cooler receipt form for all other methods.

2.0 Sample Documentation

Verification Criteria	Yes	No
Were all samples documented correctly on the chain-of-custody (COC) and samples labels?	X	
Were all sample identifications (IDs) documented correctly on sample labels?	X	
Did samples listed on COCs match the sample labels?	X	
Were samples relinquished properly on the COC?	X	

CHAAP Data Verification

Laboratory and SDG#: Eurofins 280-162442 **AECOM Chemist: D. Casagrande**
Date Verified: 7/20/2022 **AECOM ITR: S. Louie**
Guidance: DoD QSM Version 5.1 (January 2017)
Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

3.0 Initial Calibration

Method 8330A Initial Calibration Criteria			
Instrument:	**CHHPLC_X3**		
Date of Calibration:	**1/4/2022**		
	Yes	**No**	**N/A**
Was at least a five point calibration completed for all analytes prior to sample analysis and one option below?	X		
Option 1: RSD for each analyte ≤ 20%?	X		
Option 2: If linear least squares regression was used was the $r^2 \geq 0.99$?			X
Option 3: If non-linear regression was used was the coefficient of determination $r^2 \geq 0.99$?			X
If non-linear regression was used were 6 points used for second order and 7 points for third order?			X

The %RSD was met for all target analytes.

Method 8330A Initial Calibration Criteria			
Instrument:	**CHHPLC_X3**		
Date of Calibration:	**1/5/2022**		
	Yes	**No**	**N/A**
Was at least a five point calibration completed for all analytes prior to sample analysis and one option below?	X		
Option 1: RSD for each analyte ≤ 20%?	X		
Option 2: If linear least squares regression was used was the $r^2 \geq 0.99$?			X
Option 3: If non-linear regression was used was the coefficient of determination $r^2 \geq 0.99$?			X
If non-linear regression was used were 6 points used for second order and 7 points for third order?			X

Method 8330A Initial Calibration Criteria			
Instrument:	**CHHPLC_X5**		
Date of Calibration:	**3/2/2022**		
	Yes	**No**	**N/A**
Was at least a five point calibration completed for all analytes prior to sample analysis and one option below?	X		
Option 1: RSD for each analyte ≤ 20%?	X		
Option 2: If linear least squares regression was used was the $r^2 \geq 0.99$?	X		
Option 3: If non-linear regression was used was the coefficient of determination $r^2 \geq 0.99$?			X
If non-linear regression was used were 6 points used for second order and 7 points for third order?			X

CHAAP Data Verification

Laboratory and SDG#: Eurofins 280-162442 **AECOM Chemist: D. Casagrande**
Date Verified: 7/20/2022 **AECOM ITR: S. Louie**
Guidance: DoD QSM Version 5.1 (January 2017)
Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

Method 8330A Initial Calibration Criteria			
Instrument:	**CHHPLC_X5**		
Date of Calibration:	**3/3/2022**		
	Yes	**No**	**N/A**
Was at least a five point calibration completed for all analytes prior to sample analysis and one option below?	X		
Option 1: RSD for each analyte ≤ 20%?	X		
Option 2: If linear least squares regression was used was the $r^2 \geq 0.99$?			X
Option 3: If non-linear regression was used was the coefficient of determination $r^2 \geq 0.99$?			X
If non-linear regression was used were 6 points used for second order and 7 points for third order?			X

Method RSK-175 Initial Calibration Criteria			
Instrument:	**VGC_J**		
Date of Calibration:	**9/24/2021**		
	Yes	**No**	**N/A**
Was at least a five point calibration completed for all analytes prior to sample analysis and one option below?	X		
Option 1: RSD for each analyte ≤ 25%?			X
Option 2: If linear least squares regression was used was the $r^2 \geq 0.99$?	X		
Option 3: If non-linear regression was used was the coefficient of determination $r^2 \geq 0.99$?			X
If non-linear regression was used were 6 points used for second order and 7 points for third order?			X

An %RSD was not provided for methane, however, the r2 was met.

Method 9056A Initial Calibration Criteria			
Instrument:	**WC_IonChrom11**		
Date of Calibration:	**5/26/2022**		
	Yes	**No**	**N/A**
Was a minimum of three standards and a calibration blank used for ICAL?	X		
Was $r^2 \geq 0.99$?	X		

Method 9056A Initial Calibration Criteria			
Instrument:	**WC_IonChrom10**		
Date of Calibration:	**5/26/2022**		
	Yes	**No**	**N/A**
Was a minimum of three standards and a calibration blank used for ICAL?	X		
Was $r^2 \geq 0.99$?	X		

CHAAP Data Verification

Laboratory and SDG#: Eurofins 280-162442 **AECOM Chemist: D. Casagrande**
Date Verified: 7/20/2022 **AECOM ITR: S. Louie**
Guidance: DoD QSM Version 5.1 (January 2017)
Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

Method 9056A Initial Calibration Criteria			
Instrument:	**WC_IonChrom13**		
Date of Calibration:	**5/16/2022**		
	Yes	**No**	**N/A**
Was a minimum of three standards and a calibration blank used for ICAL?	X		
Was $r^2 \geq 0.99$?	X		

Method 350.1 Initial Calibration Criteria			
Instrument:	**WC_SKALAR_01**		
Date of Calibration:	**6/1/2022**		
	Yes	**No**	**N/A**
Was a minimum of three standards and a calibration blank used for ICAL?	X		
Was $r^2 \geq 0.99$?	X		

Method 353.2 Initial Calibration Criteria			
Instrument:	**WC_Alp 2**		
Date of Calibration:	**6/2/2022**		
	Yes	**No**	**N/A**
Was a minimum of three standards and a calibration blank used for ICAL?	X		
Was $r^2 \geq 0.99$?	X		

Method 351.2 Initial Calibration Criteria			
Instrument:	**WC_GAL1**		
Date of Calibration:	**6/1/2022**		
	Yes	**No**	**N/A**
Was a minimum of three standards and a calibration blank used for ICAL?	X		
Was $r^2 \geq 0.99$?	X		

Method 9060A Initial Calibration Criteria			
Instrument:	**WC_SHI5**		
Date of Calibration:	**12/10/2021**		
	Yes	**No**	**N/A**
Was a minimum of three standards and a calibration blank used for ICAL?	X		
Was $r^2 \geq 0.99$?	X		

CHAAP Data Verification

Laboratory and SDG#: Eurofins 280-162442 **AECOM Chemist: D. Casagrande**
Date Verified: 7/20/2022 **AECOM ITR: S. Louie**
Guidance: DoD QSM Version 5.1 (January 2017)
Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

4.0 Initial Calibration Verification [(ICV) Second Source]

Method 8330A ICV Criteria (Filename)	**280-562503/20**		
Instrument:	**CHHPLC_X3**		
Date of Initial Calibration Verification:	**1/4/2022**		
	Yes	**No**	**N/A**
Was the ICV analyzed after each calibration?	X		
Was the ICV for all analytes within ± 15% of the true value?	X		

Method 8330A ICV Criteria (Filename)	**280-562503/38**		
Instrument:	**CHHPLC_X3**		
Date of Initial Calibration Verification:	**1/5/2022**		
	Yes	**No**	**N/A**
Was the ICV analyzed after each calibration?	X		
Was the ICV for all analytes within ± 15% of the true value?	X		

Method 8330A ICV Criteria (Filename)	**280-567560/19**		
Instrument:	**CHHPLC_X5**		
Date of Initial Calibration Verification:	**3/3/2022**		
	Yes	**No**	**N/A**
Was the ICV analyzed after each calibration?	X		
Was the ICV for all analytes within ± 15% of the true value?	X		

Method 8330A ICV Criteria (Filename)	**280-567560/28**		
Instrument:	**CHHPLC_X5**		
Date of Initial Calibration Verification:	**3/3/2022**		
	Yes	**No**	**N/A**
Was the ICV analyzed after each calibration?	X		
Was the ICV for all analytes within ± 15% of the true value?	X		

Method RSK-175 ICV Criteria (Filename)	**280-550959/13**		
Instrument:	**VGC_J**		
Date of Initial Calibration Verification:	**9/24/2021**		
	Yes	**No**	**N/A**
Was the ICV analyzed after each calibration?	X		
Was the ICV for all analytes within ± 25% of the true value?	X		

CHAAP Data Verification

Laboratory and SDG#: Eurofins 280-162442 **AECOM Chemist: D. Casagrande**
Date Verified: 7/20/2022 **AECOM ITR: S. Louie**
Guidance: DoD QSM Version 5.1 (January 2017)
Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

Method 9056A ICV	**WC_IonChrom11**		
Date of Initial Calibration Verification:	**5/26/2022**		
	Yes	**No**	**N/A**
Was the ICV analyzed after each ICAL, prior to the beginning of a sample analysis?	X		
Was the ICV for all analytes within ± 10% of the true value?	X		

Method 9056A ICV	**WC_IonChrom10**		
Date of Initial Calibration Verification:	**5/26/2022**		
	Yes	**No**	**N/A**
Was the ICV analyzed after each ICAL, prior to the beginning of a sample analysis?	X		
Was the ICV for all analytes within ± 10% of the true value?	X		

Method 9056A ICV	**WC_IonChrom13**		
Date of Initial Calibration Verification:	**5/16/2022**		
	Yes	**No**	**N/A**
Was the ICV analyzed after each ICAL, prior to the beginning of a sample analysis?	X		
Was the ICV for all analytes within ± 10% of the true value?	X		

Method 350.1 ICV Criteria	**WC_SKALAR_01**		
Date of Initial Calibration Verification:	**6/1/2022**		
	Yes	**No**	**N/A**
Was the ICV analyzed after each ICAL, prior to the beginning of a sample analysis?	X		
Was the ICV for all analytes within ± 10% of the true value?	X		

Method 353.2 ICV Criteria	**WC_Alp 2**		
Date of Initial Calibration Verification:	**6/2/2022**		
	Yes	**No**	**N/A**
Was the ICV analyzed after each ICAL, prior to the beginning of a sample analysis?	X		
Was the ICV for all analytes within ± 10% of the true value?	X		

Method 351.2 ICV Criteria	**WC_GAL1**		
Date of Initial Calibration Verification:	**6/1/2022**		
	Yes	**No**	**N/A**
Was the ICV analyzed after each ICAL, prior to the beginning of a sample analysis?	X		
Was the ICV for all analytes within ± 10% of the true value?	X		

CHAAP Data Verification

Laboratory and SDG#: Eurofins 280-162442 **AECOM Chemist: D. Casagrande**
Date Verified: 7/20/2022 **AECOM ITR: S. Louie**
Guidance: DoD QSM Version 5.1 (January 2017)
Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

Method 9060A ICV Criteria	WC_SHI5		
Date of Initial Calibration Verification:	5/31/2022		
	Yes	No	N/A
Was the ICV analyzed after each ICAL, prior to the beginning of a sample analysis?	X		
Was the ICV for all analytes within ± 10% of the true value?	X		

5.0 Continuing Calibration Verification (CCV)

Method 8330A CCV Criteria (Filename)	280-575777/7-8		
Instrument:	CHHPLC_X5		
Date of Calibration Verification:	5/21/2022		
	Yes	No	N/A
Was the CCV analyzed daily before sample analysis?	X		
Was the CCV analyzed every 10 field samples and at the end of the analysis sequence?	X		
Was the CCV for all analytes within ± 15% of the true value?		X	

1,35-Trinitrotoluene exceeded criteria at 15.8%. Associated sample results are not detected, therefore no data were affected or qualified.

Method 8330A CCV Criteria (Filename)	280-575777/20-21		
Instrument:	CHHPLC_X5		
Date of Calibration Verification:	5/21/2022		
	Yes	No	N/A
Was the CCV analyzed daily before sample analysis?	X		
Was the CCV analyzed every 10 field samples and at the end of the analysis sequence?	X		
Was the CCV for all analytes within ± 15% of the true value?	X		

The CCV was met for all target analytes.

Method 8330A CCV Criteria (Filename)	280-576041/27-28		
Instrument:	CHHPLC_X5		
Date of Calibration Verification:	5/25/2022		
	Yes	No	N/A
Was the CCV analyzed daily before sample analysis?	X		
Was the CCV analyzed every 10 field samples and at the end of the analysis sequence?	X		
Was the CCV for all analytes within ± 15% of the true value?	X		

The CCV was met for all target analytes.

CHAAP Data Verification

Laboratory and SDG#: Eurofins 280-162442 **AECOM Chemist: D. Casagrande**
Date Verified: 7/20/2022 **AECOM ITR: S. Louie**
Guidance: DoD QSM Version 5.1 (January 2017)
Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

Method 8330A CCV Criteria (Filename)	**280-576041/39-40**		
Instrument:	**CHHPLC_X5**		
Date of Calibration Verification:	**5/25/2022**		
	Yes	**No**	**N/A**
Was the CCV analyzed daily before sample analysis?	X		
Was the CCV analyzed every 10 field samples and at the end of the analysis sequence?	X		
Was the CCV for all analytes within ± 15% of the true value?	X		

The CCV was met for all target analytes.

Method 8330A CCV Criteria (Filename)	**280-576041/49-50**		
Instrument:	**CHHPLC_X5**		
Date of Calibration Verification:	**5/25/2022**		
	Yes	**No**	**N/A**
Was the CCV analyzed daily before sample analysis?	X		
Was the CCV analyzed every 10 field samples and at the end of the analysis sequence?	X		
Was the CCV for all analytes within ± 15% of the true value?	X		

The CCV was met for all target analytes.

Method 8330A CCV Criteria (Filename)	**280-576175/7-8**		
Instrument:	**CHHPLC_X5**		
Date of Calibration Verification:	**5/25/2022**		
	Yes	**No**	**N/A**
Was the CCV analyzed daily before sample analysis?	X		
Was the CCV analyzed every 10 field samples and at the end of the analysis sequence?	X		
Was the CCV for all analytes within ± 15% of the true value?	X		

Method 8330A CCV Criteria (Filename)	**280-576175/13-14**		
Instrument:	**CHHPLC_X5**		
Date of Calibration Verification:	**5/26/2022**		
	Yes	**No**	**N/A**
Was the CCV analyzed daily before sample analysis?	X		
Was the CCV analyzed every 10 field samples and at the end of the analysis sequence?	X		
Was the CCV for all analytes within ± 15% of the true value?	X		

CHAAP Data Verification

Laboratory and SDG#: Eurofins 280-162442 **AECOM Chemist: D. Casagrande**
Date Verified: 7/20/2022 **AECOM ITR: S. Louie**
Guidance: DoD QSM Version 5.1 (January 2017)
Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

Method 8330A CCV Criteria (Filename)	**280-575728/21-22**		
Instrument:	**CHHPLC_X3**		
Date of Calibration Verification:	**5/21/2022**		
	Yes	**No**	**N/A**
Was the CCV analyzed daily before sample analysis?	X		
Was the CCV analyzed every 10 field samples and at the end of the analysis sequence?	X		
Was the CCV for all analytes within ± 15% of the true value?	X		

Method 8330A CCV Criteria (Filename)	**280-575728/34,36**		
Instrument:	**CHHPLC_X3**		
Date of Calibration Verification:	**5/21/2022**		
	Yes	**No**	**N/A**
Was the CCV analyzed daily before sample analysis?	X		
Was the CCV analyzed every 10 field samples and at the end of the analysis sequence?	X		
Was the CCV for all analytes within ± 15% of the true value?	X		

Method 8330A CCV Criteria (Filename)	**280-576029/38-39**		
Instrument:	**CHHPLC_X3**		
Date of Calibration Verification:	**5/25/2022**		
	Yes	**No**	**N/A**
Was the CCV analyzed daily before sample analysis?	X		
Was the CCV analyzed every 10 field samples and at the end of the analysis sequence?	X		
Was the CCV for all analytes within ± 15% of the true value?	X		

Method 8330A CCV Criteria (Filename)	**280-576029/50-51**		
Instrument:	**CHHPLC_X3**		
Date of Calibration Verification:	**5/25/2022**		
	Yes	**No**	**N/A**
Was the CCV analyzed daily before sample analysis?	X		
Was the CCV analyzed every 10 field samples and at the end of the analysis sequence?	X		
Was the CCV for all analytes within ± 15% of the true value?	X		

CHAAP Data Verification

Laboratory and SDG#: Eurofins 280-162442 **AECOM Chemist: D. Casagrande**
Date Verified: 7/20/2022 **AECOM ITR: S. Louie**
Guidance: DoD QSM Version 5.1 (January 2017)
Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

Method 8330A CCV Criteria (Filename)	**280-576029/60-62**		
Instrument:	**CHHPLC_X3**		
Date of Calibration Verification:	**5/25/2022**		
	Yes	**No**	**N/A**
Was the CCV analyzed daily before sample analysis?	X		
Was the CCV analyzed every 10 field samples and at the end of the analysis sequence?	X		
Was the CCV for all analytes within ± 15% of the true value?	X		

Method 8330A CCV Criteria (Filename)	**280-576029/69-70**		
Instrument:	**CHHPLC_X3**		
Date of Calibration Verification:	**5/25/2022**		
	Yes	**No**	**N/A**
Was the CCV analyzed daily before sample analysis?	X		
Was the CCV analyzed every 10 field samples and at the end of the analysis sequence?	X		
Was the CCV for all analytes within ± 15% of the true value?	X		

Method RSK-175 CCVRT Criteria (Filename)	**280-576169/2**		
Instrument:	**VGC_J**		
Date of Calibration Verification:	**5/25/2022**		
	Yes	**No**	**N/A**
Was the CCV analyzed daily before sample analysis?	X		
Was the CCV analyzed every 10 field samples and at the end of the analysis sequence?	X		
Was the CCV for all analytes within ± 25% of the true value?	X		

Method RSK-175 CCV Criteria (Filename)	**280-576169/75**		
Instrument:	**VGC_J**		
Date of Calibration Verification:	**5/25/2022**		
	Yes	**No**	**N/A**
Was the CCV analyzed daily before sample analysis?	X		
Was the CCV analyzed every 10 field samples and at the end of the analysis sequence?	X		
Was the CCV for all analytes within ± 25% of the true value?	X		

CHAAP Data Verification

Laboratory and SDG#: Eurofins 280-162442 **AECOM Chemist: D. Casagrande**
Date Verified: 7/20/2022 **AECOM ITR: S. Louie**
Guidance: DoD QSM Version 5.1 (January 2017)
Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

Method RSK-175 CCVRT Criteria (Filename)	**280-576170/2**		
Instrument:	**VGC_J**		
Date of Calibration Verification:	**5/25/2022**		
	Yes	**No**	**N/A**
Was the CCV analyzed daily before sample analysis?	X		
Was the CCV analyzed every 10 field samples and at the end of the analysis sequence?	X		
Was the CCV for all analytes within ± 25% of the true value?	X		

Method RSK-175 CCV Criteria (Filename)	**280-576170/89**		
Instrument:	**VGC_J**		
Date of Calibration Verification:	**5/25/2022**		
	Yes	**No**	**N/A**
Was the CCV analyzed daily before sample analysis?	X		
Was the CCV analyzed every 10 field samples and at the end of the analysis sequence?	X		
Was the CCV for all analytes within ± 25% of the true value?	X		

Method RSK-175 CCV Criteria (Filename)	**280-576170/106**		
Instrument:	**VGC_J**		
Date of Calibration Verification:	**5/25/2022**		
	Yes	**No**	**N/A**
Was the CCV analyzed daily before sample analysis?	X		
Was the CCV analyzed every 10 field samples and at the end of the analysis sequence?	X		
Was the CCV for all analytes within ± 25% of the true value?	X		

Method RSK-175 CCVRT Criteria (Filename)	**280-576348/2**		
Instrument:	**VGC_J**		
Date of Calibration Verification:	**5/26/2022**		
	Yes	**No**	**N/A**
Was the CCV analyzed daily before sample analysis?	X		
Was the CCV analyzed every 10 field samples and at the end of the analysis sequence?	X		
Was the CCV for all analytes within ± 25% of the true value?	X		

CHAAP Data Verification

Laboratory and SDG#: Eurofins 280-162442 **AECOM Chemist: D. Casagrande**
Date Verified: 7/20/2022 **AECOM ITR: S. Louie**
Guidance: DoD QSM Version 5.1 (January 2017)
Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

Method RSK-175 CCV Criteria (Filename)	**280-576348/76**		
Instrument:	**VGC_J**		
Date of Calibration Verification:	**5/26/2022**		
	Yes	**No**	**N/A**
Was the CCV analyzed daily before sample analysis?	X		
Was the CCV analyzed every 10 field samples and at the end of the analysis sequence?	X		
Was the CCV for all analytes within ± 25% of the true value?	X		

Method RSK-175 CCV Criteria (Filename)	**280-576348/89**		
Instrument:	**VGC_J**		
Date of Calibration Verification:	**5/27/2022**		
	Yes	**No**	**N/A**
Was the CCV analyzed daily before sample analysis?	X		
Was the CCV analyzed every 10 field samples and at the end of the analysis sequence?	X		
Was the CCV for all analytes within ± 25% of the true value?	X		

Method RSK-175 CCVRT Criteria (Filename)	**280-576349/2**		
Instrument:	**VGC_J**		
Date of Calibration Verification:	**5/26/2022**		
	Yes	**No**	**N/A**
Was the CCV analyzed daily before sample analysis?	X		
Was the CCV analyzed every 10 field samples and at the end of the analysis sequence?	X		
Was the CCV for all analytes within ± 25% of the true value?	X		

Method RSK-175 CCV Criteria (Filename)	**280-576349/89**		
Instrument:	**VGC_J**		
Date of Calibration Verification:	**5/27/2022**		
	Yes	**No**	**N/A**
Was the CCV analyzed daily before sample analysis?	X		
Was the CCV analyzed every 10 field samples and at the end of the analysis sequence?	X		
Was the CCV for all analytes within ± 25% of the true value?	X		

CHAAP Data Verification

Laboratory and SDG#: Eurofins 280-162442 **AECOM Chemist: D. Casagrande**
Date Verified: 7/20/2022 **AECOM ITR: S. Louie**
Guidance: DoD QSM Version 5.1 (January 2017)
Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

Method RSK-175 CCV Criteria (Filename)	**280-576349/106**		
Instrument:	**VGC_J**		
Date of Calibration Verification:	**5/27/2022**		
	Yes	**No**	**N/A**
Was the CCV analyzed daily before sample analysis?	X		
Was the CCV analyzed every 10 field samples and at the end of the analysis sequence?	X		
Was the CCV for all analytes within ± 25% of the true value?	X		

Method RSK-175 CCV Criteria (Filename)	**280-576349/123**		
Instrument:	**VGC_J**		
Date of Calibration Verification:	**5/27/2022**		
	Yes	**No**	**N/A**
Was the CCV analyzed daily before sample analysis?	X		
Was the CCV analyzed every 10 field samples and at the end of the analysis sequence?	X		
Was the CCV for all analytes within ± 25% of the true value?	X		

Method 9056A, Instrument: WC_IonChrom10, All CCVs on 5/31/2022-6/2/2022	**Yes**	**No**
Was a CCV analyzed after every 10 field samples and at the end of the analysis sequence?	X	
Were the CCVs for all analytes within ± 10% of the true value?	X	

Method 9056A, Instrument: WC_IonChrom11, All CCVs on 5/31/2022-6/1/2022	**Yes**	**No**
Was a CCV analyzed after every 10 field samples and at the end of the analysis sequence?	X	
Were the CCVs for all analytes within ± 10% of the true value?	X	

Method 9056A, Instrument: WC_IonChrom13, All CCVs on 6/3/2022	**Yes**	**No**
Was a CCV analyzed after every 10 field samples and at the end of the analysis sequence?	X	
Were the CCVs for all analytes within ± 10% of the true value?	X	

Method 350.1, Instrument: WC_SKALAR_01, All CCVs on 6/1/2022	**Yes**	**No**
Was a CCV analyzed after every 10 field samples and at the end of the analysis sequence?	X	
Were the CCVs for all analytes within ± 10% of the true value?	X	

Method 353.2, Instrument: WC_Alp 2, All CCVs on 6/2/2022	**Yes**	**No**
Was a CCV analyzed after every 10 field samples and at the end of the analysis sequence?	X	
Were the CCVs for all analytes within ± 10% of the true value?	X	

Method 351.2, Instrument: WC_GAL1, All CCVs on 6/1/2022	**Yes**	**No**
Was a CCV analyzed after every 10 field samples and at the end of the analysis sequence?	X	
Were the CCVs for all analytes within ± 10% of the true value?	X	

CHAAP Data Verification

Laboratory and SDG#: Eurofins 280-162442 **AECOM Chemist: D. Casagrande**
Date Verified: 7/20/2022 **AECOM ITR: S. Louie**
Guidance: DoD QSM Version 5.1 (January 2017)
Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

Method 9060A, Instrument: WC_SHI5, All CCVs on 5/31/2022- 6/1/2022	Yes	No
Was a CCV analyzed after every 10 field samples and at the end of the analysis sequence?	X	
Were the CCVs for all analytes within ± 10% of the true value?	X	

Method 2320B, Instrument: WC_AT3, All CCVs on 5/24-25/2022	Yes	No
Was a CCV analyzed after every 10 field samples and at the end of the analysis sequence?	X	
Were the CCVs for all analytes within ± 10% of the true value?	X	

6.0 Sensitivity

Sensitivity Criteria	Yes	No	N/A
Was the laboratory sensitivity consistent with project (QAPP) requirements?	X		
Did all analytes meet sensitivity requirements?	X		

7.0 Additional Qualifications

Additional Qualification Criteria	Yes	No	N/A
Were common laboratory contaminants detected?		X	
Was professional judgment used to qualify data (if yes, list below)?	X		

The RPD between the primary and confirmation column for some explosives were above evaluation criteria. Qualification of data is shown in the table below; results were reported from the primary column unless otherwise noted.

Sample ID	Analysis	Analyte	RPD	Qual
PZ016-22A	Explosives	2-amino-4,6-dinitrotoluene	62	**J**
G0097-22A	Explosives	HMX	41.7	**J**
G0112-22A	Explosives	RDX	123.1	**J**
NW220-2A	Explosives	RDX	45.1	**J**
NW020-2A	Explosives	RDX	46.5	**J**
G0118-2A	Explosives	RDX	147.6	**J**

The method requirement for no headspace was not met. The following volatile samples were analyzed with significant headspace in the sample container(s): G0098-22A (280-162442-8) and G0112-22A (280-162442-9). Significant headspace is defined as a bubble greater than 6 mm in diameter. The detected Methane results are qualified as estimated concentrations (J).

Sample ID	Analysis	Analyte	Qualification
G0098-22A	RSK-175	Methane	**J**
G0112-22A	RSK-175	Methane	**J**

CHAAP Data Verification

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Date Verified: 7/20/2022 **AECOM ITR: S. Louie**
Guidance: DoD QSM Version 5.1 (January 2017)
Applicable QAPP: Cornhusker Army Ammunition Plant QAPP (Brice and AECOM, October 2019)
Applicable Analytical Methods: 8330A, 353.2, 350.1, 351.2, RSK-175, 9060A, 2320B, 9056A, 9034

8.0 Completeness

Completeness Criteria	Yes	No	N/A
Were any data rejected during the verification process?		X	
Were any samples lost, broken, or in any other manner in not verified?		X	
Were requested sample analyses performed, the correct analyte lists used, and correct sample preparation and analyses methods and units utilized?	X		